

WE CLAIM:

1 1. In combination with a valve having a stem rotatable
2 about an axis, a handle assembly comprising:

3 a noncircular axially extending formation centered on
4 the axis and fixed on the stem;

5 a retaining element fixed to the stem and formed
6 centered on the axis with

7 an array of axially extending and radially
8 deflectable tongues axially offset from the
9 stem formation and having radially outwardly
10 directed bumps of a predetermined diameter,
11 and

12 a screwthread of predetermined axial length
13 axially offset from the stem formation and
14 from the tongues and of an outside diameter
15 at least equal to the bump diameter; and

16 a handle having a hub formed with a hole fittable
17 axially over the retaining element and formed inside the hole
18 with

19 a screwthread complementary to the retaining-
20 element screwthread,

21 a handle formation complementary to and fittable
22 axially with the stem formation and offset
23 from the handle screwthread by a distance

24 greater than the retaining-element
25 screwthread axial length, and
26 a radially inwardly open groove, the handle
27 fitting with its hole over the element with
28 the formations interengaged, the screwthreads
29 not engaged, and the bumps in the groove.

1 2. The valve handle assembly defined in claim 1
2 wherein stem formation includes a plurality of planar facets
3 extending parallel to the axis.

1 3. The valve handle assembly defined in claim 2
2 wherein the stem formation is splines.

1 4. The valve handle assembly defined in claim 1,
2 further comprising
3 an axially extending screw threaded into the stem and
4 bearing axially on the retaining element.

1 5. The valve handle assembly defined in claim 4
2 wherein the screw has a cylindrical head, the hole of the handle
3 being formed centered on the axis with a cylindrical pocket
4 complementarily receiving the screw head.

1 6. The valve handle assembly defined in claim 1
2 wherein the handle hole has a cylindrical wall region centered on
3 the axis, the assembly further comprising
4 a seal ring on the stem and radially engaging the wall
5 region.

1 7. The valve handle assembly defined in claim 1,
2 further comprising
3 a mounting cup fixed rotationally on the stem and
4 forming the stem formation, the cup and stem having
5 complementarily interengaging coupling formations.

1 8. The valve handle assembly defined in claim 7,
2 further comprising
3 an axially extending screw threaded into the stem,
4 bearing axially on the retaining element and extending through an
5 end wall of the cup.

1 9. The valve handle assembly defined in claim 8
2 wherein the screw has a shoulder bearing axially inward on the
3 retaining element.

1 10. The valve handle assembly defined in claim 9
2 wherein the retaining element has a central bore formed with a
3 shoulder bearing axially outward on the shoulder of the screw.